

WHAT IS CLAIMED IS:

1. A process for forming an article, comprising  
  
heating a reinforced resinous substrate to a thermoforming temperature to form a heated substrate;  
  
contacting a surface of the heated substrate with a surface of shaped surface component, wherein the heated substrate has a sufficient concentration of heated resin at the surface thereof for bonding the heated substrate to the shaped surface component; and  
  
thermoforming the heated substrate at a pressure less than or equal to about 500 psi (3447 kPa) to provide a bond at an interface between the surface of the thermoformed substrate and the surface of the shaped surface component.
2. The process of claim 1, wherein a tie layer is disposed at the interface.
3. The process of claim 1, wherein the shaped surface component comprises a film layer, and further wherein the interface is between the surface of the thermoformed substrate and a surface of the film layer.
4. The process of claim 3, wherein a tie layer is disposed at the interface.
5. The process of claim 1, wherein the shaped surface component comprises a film layer and a first compatible layer, and further wherein the interface is between the surface of the thermoformed substrate and a surface of the first compatible layer opposite the film layer.
6. The process of claim 5, wherein a tie layer is disposed at the interface.
7. The process of claim 1, comprising forming the shaped surface component by thermoforming in a mold.
8. The process of claim 7, wherein the thermoformed surface component is cooled in the mold, then contacted with the heated substrate without removal from the mold.

9. The process of claim 7, further comprising removing the thermoformed surface component from the mold, and placing the thermoformed surface component in or on a second mold prior to contacting with the heated substrate.

10. The process of claim 1, wherein a surface of the shaped surface component opposite the heated substrate is adjacent a mold form for maintaining the shaped surface component at a temperature below the thermoforming temperature.

11. The process of claim 1, wherein thermoforming is at a pressure about 1 (6.9 kPa) to about 500 psi (3447 kPa)

12. The process of claim 1, wherein thermoforming is at a pressure of about 10 (69 kPa) to about 100 psi (690 kPa).

13. The process of claim 1, wherein a surface of the heated substrate opposite the shaped surface component is in contact with a conformable pressure-transmitting medium, and further comprising thermoforming the heated substrate by transmitting a thermoforming pressure through the medium.

14. The process of claim 1, wherein a surface of the heated substrate opposite the shaped surface component is in contact with a mold form, and further comprising thermoforming the heated substrate by transmitting a thermoforming pressure through the mold form.

15. The process of claim 1, further comprising a balancing layer positioned adjacent the heated substrate on a side opposite the film layer.

16. The process of claim 1, wherein the surface component or substrate comprises a polycarbonate, acrylonitrile-styrene-acrylic, acrylic, acrylonitrile-butadiene-styrene, polybutylene terephthalate, polyethylene terephthalate, polyolefin, arylate polyester, or a blend, alloy, or copolymer comprising at least one of the foregoing resins.

17. The process of claim 1, wherein the surface component comprises a polymer comprising units of an arylate polyester.

18. The process of claim 1, wherein the surface component comprises a film layer comprising arylate polyester units and a first compatible layer comprising an additive for providing an aesthetic effect.

19. The process of claim 18, wherein the film layer comprises a block copolyester carbonate comprising arylate polyester-containing block segments in combination with organic carbonate block segments and the first compatible layer comprises a colorant.

20. A process for forming an article, comprising  
thermoforming a reinforced resinous substrate to provide a shaped reinforced resinous substrate;

thermoforming a surface component, wherein the shape of the surface component substantially matches the shape of the reinforced resinous substrate; and

joining a surface of the shaped reinforced resinous substrate with a surface of the surface component at an interface.

21. The process of claim 20, wherein the joining is by thermoforming or use of an adhesive.

22. An article made by the process of claim 1.

23. An article made by the process of claim 20.

24. A shaped multilayer article comprising:  
a shaped surface component; and  
a reinforced resinous substrate, shaped and joined to the surface component at an interface by thermoforming.

25. The article of claim 24, wherein the surface component comprises a film layer and a first compatible layer, wherein the interface is between the substrate and a side of the compatible layer opposite the film layer.

26. The article of Claim 24, wherein the surface component or substrate comprises a polycarbonate, acrylonitrile-styrene-acrylic, acrylic, acrylonitrile-styrene-styrene, polybutylene terephthalate, polyethylene terephthalate, polyolefin, arylate polyester, or a blend, alloy, or copolymer comprising at least one of the foregoing resins.

27. The article of claim 24, wherein a surface of the film layer opposite the first compatible layer comprises a weatherable resorcinol polyester resin having a "Class A" finish.